Pre-Bid Conference on

Defining the Pathway to the California Smart Grid of 2020

Request for Proposals

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Welcome

Presenters

Introduction - Mike Gravely

Administrative Overview - Tammy Parkison

RFP Overview - David Michel

RFP Overview

- Background on RFP
- Smart Grid Overview
- Review of Items for Consideration for this RFP
- Goals and Objectives of this RFP
- Q&A
- Next Steps

Ongoing PIER SmartGrid Research

Transmission

- Phasor Measurement
- Advanced displays
- Advanced comm & controls
- MRTU interface
- Energy Storage
- Renewables

Distribution

- Distribution Automation
- AMI
- Advanced C&C
- MRTU
- Energy Storage
- Renewables

Integration

- Renewables
- Standards
- Protocols
- Reference designs
- Micro Grids
- Automation

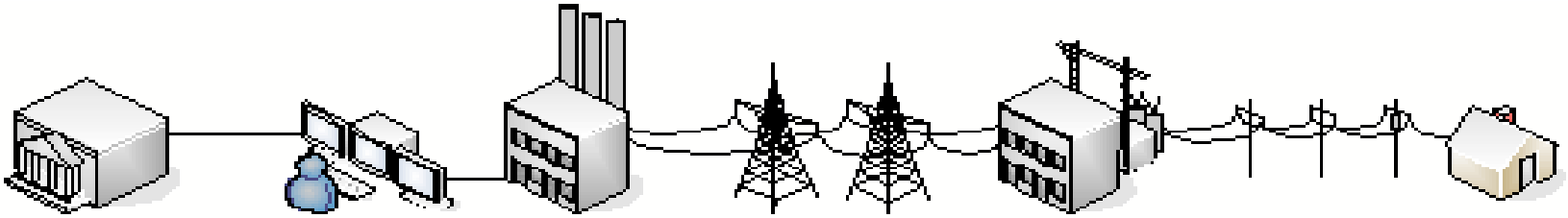
Consumer

- Automating Demand Response
- AMI
- Dynamic Rates
- Home Area Networks
- Plug in Hybrids
- Renewables

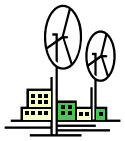
What is a Smart Grid?

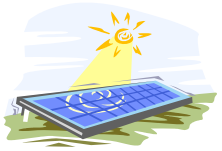
(For Discussion Purposes Only)

Merging Two Infrastructures

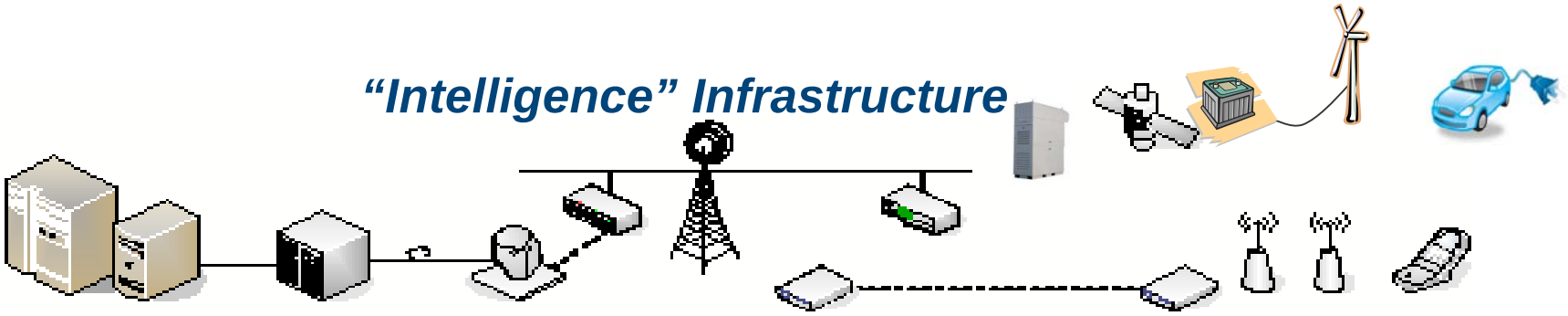


Electrical Infrastructure





"Intelligence" Infrastructure



(Smart Grid Information is for Discussion Purposes Only)

The Energy Independence and Security Act of 2007: Extracts from Title XIII

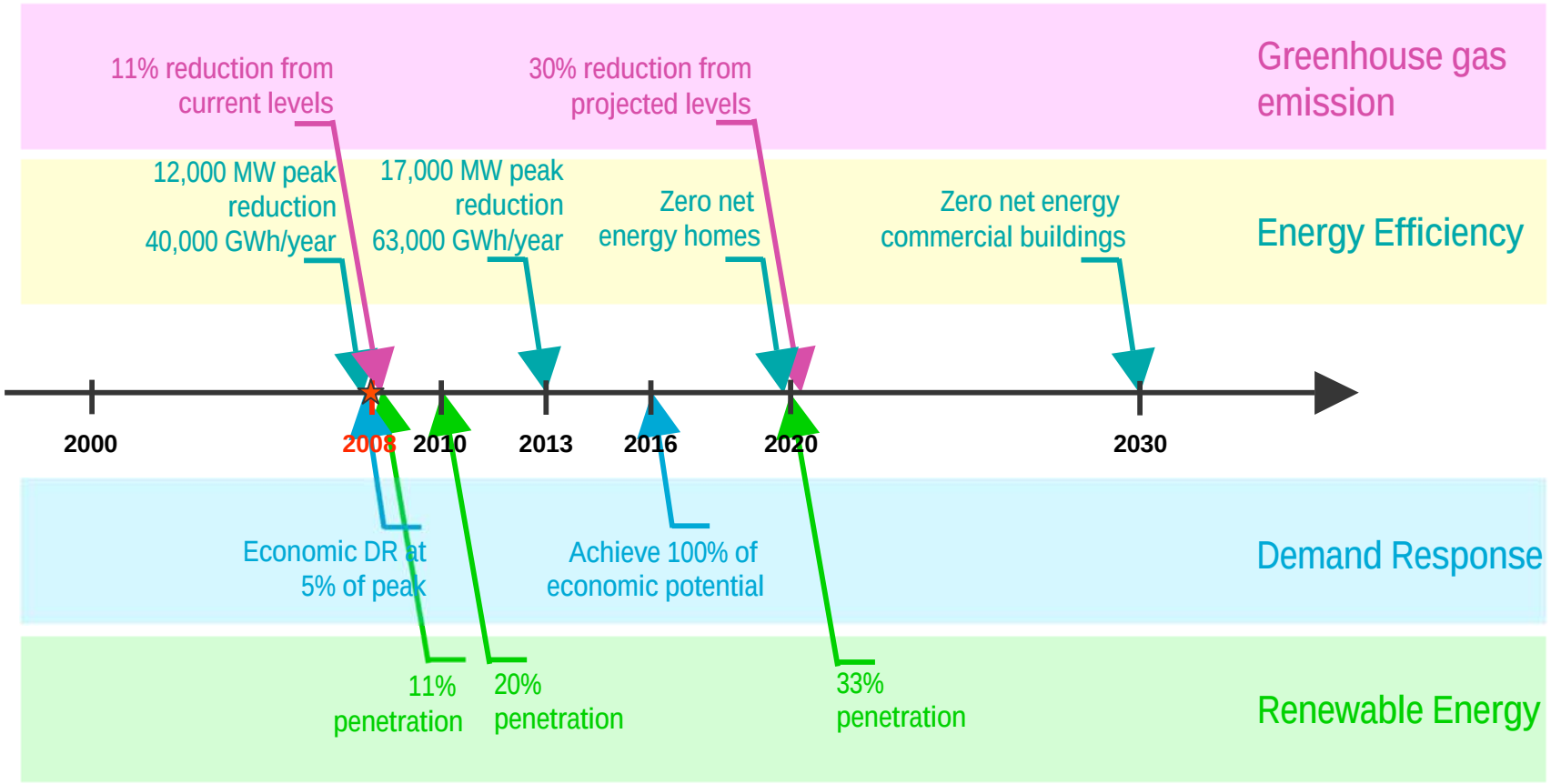
The Smart Grid includes:

- Optimizing grid operations and resources
- Cybersecurity
- Integrating distributed and demand side resources
- Deploying smart technologies
- Communications of grid operations and status (outage management)
- Distribution automation
- Integrating “smart” appliances and other consumer devices
- Deploying and integrating advanced energy storage technologies
- Allowing for consumer control
- Developing interoperability standards
- Identifying and lowering barriers to adoption of smart grid technologies

Why Smart Grid for California?

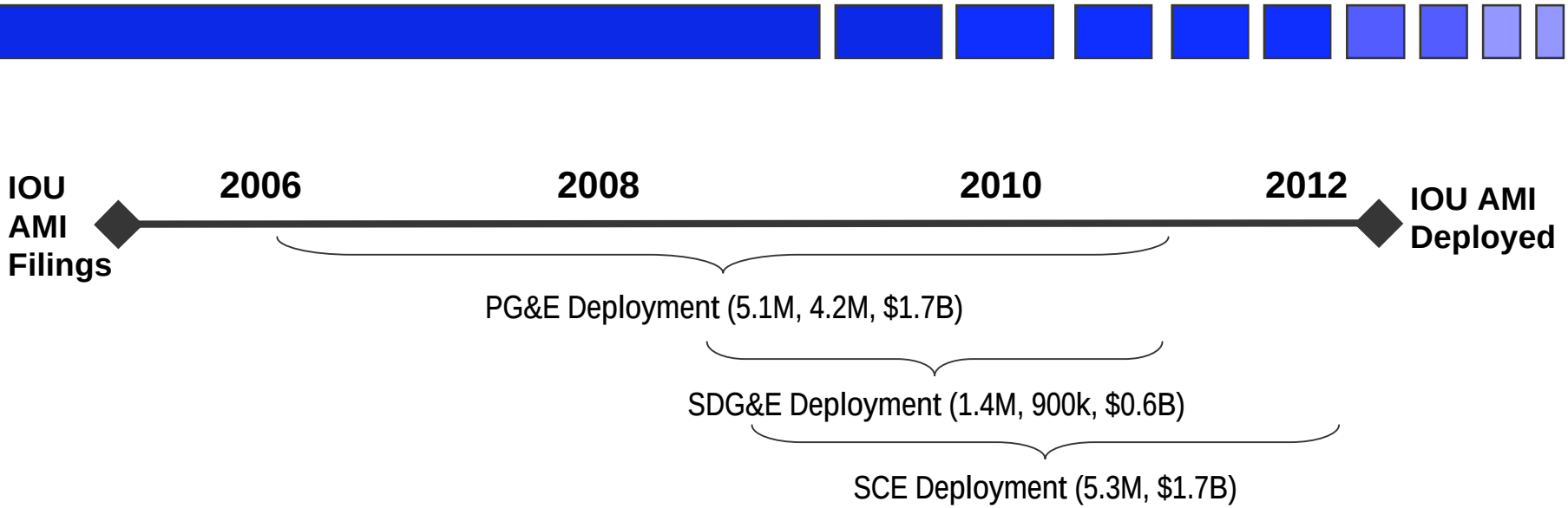
(Smart Grid Information is for Discussion Purposes Only)

California Energy Policy Targets



(Smart Grid Information is for Discussion Purposes Only)

California AMI Deployment



- **12 Million Meters over next 4 years**
- **At a cost of $4 Billion**

(Electric Meters, Gas Meters, Budget)

Review of Items for Consideration for this RFP

When developing this definition and roadmap, it will be important to include the major initiatives and policies that are currently impacting California.

Some of these include:

1.The ongoing implementation of new Advanced Metering Infrastructure (AMI) systems by many of the California utilities.

2.The state's Renewable Portfolio Standard (RPS), including operating the Smart Grid of the future with a substantial increased percentage of renewable resources.

3.Greenhouse gas reduction goals, as define in Assembly Bill 32 (Nunez, Chapter 488, Statutes of 2006) and other state directives.

Review of Items for Consideration for this RFP Cont.

4. Aggressive energy efficiency and demand response goals, as defined by state directives.

5. Modernizing the aging utility grid infrastructure.

6. Meet the future energy growth needs of California with new and innovative technologies, including:

   - Utilizing existing assets more efficiently
   - Less environment impact on the state
   - Meeting stringent costs/benefit assessments
   - Provides ratepayers and customers of California new options in meeting their individual energy needs

Goals & Objective of this RFP

Promising smart grid technologies achieving the following goals:

- Identify key Smart Grid drivers, including the top California energy policy goals that impact the California Smart Grid of 2020.
- Define the key elements of the Smart Grid for California in 2010 and 2020 to include identifying the critical standards, codes, protocols and reference designs that California needs to address for a successful Smart Grid in 2020.
- Identify cost-effective Smart Grid technologies that need to be encouraged and demonstrated. Identify the critical use cases that should be developed to explain how these technologies will be utilized as part of the California Smart Grid of 2020.

Goals & Objective of this RFP Cont.

- For key technologies, identify critical barriers necessary to overcome the proposer's definition of the California Smart Grid of 2020. The proposer should provide recommended course of action to address the identified barriers.

- Identify and quantify potential costs and benefits for key items in both the 2010 and 2020 proposer's Smart Grid definitions.

- Develop pathways and deployment plan for cost effective Smart Grid technologies for California as the proposer feels they currently exist for 2010 and the technology recommendations for 2020.

- Identify and quantify potential costs and benefits for key items in both the 2010 and 2020.

Goals & Objective of this RFP Cont.

- As a minimum, the proposer must address the integration and implementation of:
  - Electricity and natural gas transmission and distribution system “smart grid” technologies,
  - Advanced metering infrastructure,
  - Home area networks,
  - Plug-in hybrids,
  - Renewable integration at all levels (generation, transmission, distribution and end use),
  - Energy storage technology applications at all levels (generation, transmission, distribution and end use),

Goals & Objective of this RFP Cont.

- One-way and two-way communication to support smart grid operations,
- Technologies the proposer feels is critical to the California Smart Grid in 2020.
- The proposed contract level of effort required to accomplish all these tasks in the desired six to nine month time period.
- The amount of proposer cost share that is reasonable for this contract.

Two Project Teams
Two Separate Contracts

Requesting two separate teams respond (Up to $500K per team)

Can only be prime contractor for one proposal

- Must identify your choice when submitting proposal
- Prime Contractor on one proposal area may be Subcontractor for other area

- **Utility lead team** (prime contractor)
  - Utility
  - Utility Association
  - Utility Consultant (reasonable size)

- **Industry lead team** (prime contractor)
  - Industry--manufacturer, service provider or implementer
  - Industry Association
  - Industry Consultant (reasonable size)

Technical & Policy Evaluation Criteria

1. **Project Proposal (100 Points)**

   The extent to which the proposal demonstrates that:

   a. The proposal provides clear definitions of the key elements to the pathway to the California Smart Grid of 2020 and,

   b. The Bidder has clearly identified the technical elements defined in the Feasibility Screening sections of this RFP.

Technical & Policy Evaluation Criteria

2. **Proposal Identifies Technologies That Meet The Needs Of California (150 Points)**

   The extent to which:

   a. Overall plan for defining Smart Grid for 2010 and 2020 are clear, understandable, and concise.

   b. The technologies identified show a clear connection to the future California market and the technologies have clear commercial potential.

   c. The pathway to the smart Grid of 2020 defines how these technologies will be implemented.

   d. The proposal clearly defines the current state of each critical element of the Smart Grid as of January 1, 2010 so the proposed pathway to the future smart grid can be better understood.

Technical & Policy Evaluation Criteria

3. Project Scope of Work (200 Points)

The extent to which:

a. The work scope includes an overall project goal that addresses the key issues and responds necessary to understand the critical elements of the proposed pathway to the California Smart Grid of 2020

b. The scope of work demonstrates a clear, appropriate and complete plan for achieving the desired smart grid elements defined

c. The work schedule is logical, reasonably sequences tasks, and allocates time, labor, equipment and facilities per task

Technical & Policy Evaluation Criteria

3. Project Scope of Work (200 Points) Cont.

d. The proposal explicitly describes risks associated with the proposed smart grid and describes proposed mitigation strategies

e. The work scope clearly identifies which resource performs the work task and explicitly details project management activities.

f. The proposal systematically identifies and assesses project risks

Technical & Policy Evaluation Criteria

4. The Proposal Addresses the Key Technology Advancements Necessary to Reach the Proposed Smart Grid of 2020 (100 Points)

The extent to which:

a. Identifies the current status of the proposed technologies and capabilities necessary to make the smart grid of 2020 operational.

b. Identifies the key market, regulatory, and technology advancement barriers necessary for the smart grid to become operational.

c. Discusses how future PIER funding can best support the proposed implementation of the California Smart Grid of 2020.

Technical & Policy Evaluation Criteria

5. Business Case for the California Smart Grid of 2020 (100 Points)

The extent to which:

a. The proposal identifies the business case for the proposed pathway to the California Smart Grid of 2020 and justifies why key elements proposed were selected.

b. The proposal documents and quantifies the baseline conditions of appropriate technologies as well as specific markets expected in 2020.

c. The proposal describes how the California Smart Grid technologies compares to the technologies expected to be used to support the Smart Grid of other states or the nation.

d. The proposal identifies the key benefits to the California ratepayer of the technologies and capabilities recommended for the Smart Grid of 2020.

Technical & Policy Evaluation Criteria

6. **Project Manager and Project Team (50 Points)**

   The extent to which:

   a. The Project Manager has specific organizational, administrative, and team lead skills and a proven track record for managing research projects successfully,

   b. The team structure provides clear roles and responsibilities among the team members

   c. The team has the technical experience and proven skills in the proposed specific technical research area;

Technical & Policy Evaluation Criteria

6. Project Manager and Project Team (50 Points) Cont.

d. The project team has past success in taking RD&D products to market

e. The research team demonstrates they have the financial capability to carry out the project; and,

f. The research team has diversity and experience in the skill sets needed to successfully respond to the administration, design, implementation, evaluation, and marketing requirements stated in the RFP.

Technical & Policy Evaluation Criteria

7. Project Cost-Effectiveness (100 Points)

The proposed project's cost-effectiveness will be evaluated relative to the overall public benefits being provided by the project.

The extent to which:

a. The PIER funds requested are appropriate, relative to the goals and objectives of the project;

b. The PIER funds requested are commensurate with the value of public benefits not adequately addressed by regulated or competitive markets which the project will provide; and,

c. The portion of the budget dedicated to research development and demonstration technology transfer actions are significantly greater than the administrative costs.

d. Match funding levels are appropriate and well documented.

Technical & Policy Evaluation Criteria

8. **Match Funding (50 Points)**

   Note that, in general, the percentage of match funds (cash and in-kind) should be proportional to the amount of private versus public benefits resulting from the project.

   The extent to which:

   a. The match funds are proportional to the ratio of private benefits compared to public benefits of the proposal and the match funds benefit the project goals

   b. The proposed match funds reflect a commitment by the industry partners to transfer the project RD&D results to the marketplace

   c. The type of match funds proposed (e.g., cash and in-kind contributions; direct and indirect; private and public) represent an appropriate level of support

   d. The proposed match funds are secure

   e. The proposal describes a strategy for project completion even if the proposed match funds are significantly reduced or lost

Technical & Policy Evaluation Criteria

9. Project Budget (150 Points)

The extent to which:

a. The project budget information provided is consistent with the scope of work.

b. The proposal shows the total budget, the PIER reimbursable budget, and the match funds budget, indicating all funding sources, for each task described in the scope of work;

c. The proposal itemizes the budget in sufficient detail to justify the expenditures by task.

d. The budget shows that key personnel and subcontractors will be committed to the project for the appropriate number of hours and functions to accomplish the activities described in the work statement.

Questions Received

1. **Question:** What is the degree of the RFP's emphasis on natural gas infrastructure compared to its emphasis on electric power infrastructure (e.g., 50/50 emphasis, or primary emphasis on electric power infrastructure with some consideration of natural gas infrastructure too)?

   Answer: Each team shall determine to the degree natural gas infrastructure should be emphasized.

2. **Question:** Is there a benefits assessment methodology that the CEC wants project teams to use in developing business cases (e.g., methodology to assess societal benefits or CA utility benefits)? If so, is the methodology published and can be shared with project teams?

   Answer: No assessment methodology is specified. Each project team should provide their analysis. “End-to-End” assessments (Generation to Customer) solutions are a goal of this RFP.

Questions Received

3. **Question:** Please clarify what is meant by (on page 1 of Att. 14) "the RD&D results of the proposed project will connect to the market". Is the market connection requirement of proposal referring to commercialization or application of the project results by industry members like utilities?

   Answer: Proposed results shall have market connection through the most efficient pathways. The pathway should be clearly addressed at every level and timeframe.

4. **Question:** Could You Clarify Possible Prime Contractor Roles Permissible for National Laboratories?

   Answer: National Laboratories, or other entities can represent either the utility or vendor perspective, as long as they assemble a competitive team that includes a strong utility focus or a strong vendor/manufacturer focus respectively. No single entity can propose to be the Prime Contractor for both areas, they must select one or the other. A entity that submits as a Prime Contractor for one of the two focus areas also may be proposed as a subcontractor for a different team in the other focus area.

Question and Answers

Deadline for Submittal of Questions is

March 24, 2009

Next Steps

Questions or clarifications about this RFP should be directed to:

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